

What is Claimed is:

1. 1. A pallet rack comprising
  2. a lower pallet unit including a lower pallet having a horizontal upper surface and
  3. a plurality of vertical posts extending longitudinally upwardly from said upper surface,
  4. each of said posts having a lower portion secured to said lower pallet and having an
  5. upper portion, each of said posts having a longitudinal passage at said upper portion
  6. terminating at an upper end circumscribing an entry opening to said passage;
  7. a plurality of connectors respectively associated with said passages, each of said
  8. connectors including a support flange having a lower face and an upper face, a lower
  9. extension extending longitudinally from said lower face and an upper extension
  10. extending longitudinally from said upper face coaxial with said lower extension, said
  11. flanges having an external size to prevent passage of said flanges through said entry
  12. openings, said lower extensions being respectively disposed with a close fit in said
  13. passages via said entry openings with said lower faces of said flanges in respective
  14. abutment with said upper ends of said passages; and
15. an upper pallet unit including an upper pallet having a lower surface and a
16. horizontal upper surface, and a plurality of bores in said upper pallet respectively
17. corresponding to said upper extensions, each of said bores having an entry aperture
18. along said lower surface of a size to prevent passage of said flanges therethrough, said
19. upper extensions being respectively disposed with a close fit in said bores via said entry
20. apertures with said lower surface of said upper pallet in abutment with said upper faces
21. of said flanges whereby said upper pallet is supported in parallel spaced relation over
22. said lower pallet.

1           2.     The pallet rack recited in claim 1 and further including a plurality of  
2     securing devices respectively securing said lower portions to said lower pallet, said  
3     securing devices comprising a plurality of base plates respectively secured to said lower  
4     portions of said posts at a perpendicular angle and attached to said upper surface of  
5     said lower pallet.

1           3.     The pallet rack recited in claim 1 wherein each of said lower portions of  
2     said posts has a longitudinal passage terminating at a lower end circumscribing an  
3     entry opening to said passage of said lower portion, and further including a plurality of  
4     securing devices respectively securing said lower portions to said lower pallet, said  
5     securing devices comprising an additional plurality of said connectors respectively  
6     associated with said passages of said lower portions, said flanges of said additional  
7     plurality of said connectors having an external size to prevent passage of said flanges  
8     of said additional plurality of said connectors through said entry openings at said lower  
9     ends, said upper extensions of said additional plurality of said connectors being  
10    respectively disposed with a close fit in said passages of said lower portions via said  
11    entry openings at said lower ends with said upper faces of said flanges of said  
12    additional plurality of said connectors in respective abutment with said lower ends, and  
13    a plurality of bores in said lower pallet respectively corresponding to said lower  
14    extensions of said additional plurality of said connectors, each of said bores in said  
15    lower pallet having an entry aperture along said upper surface of said lower pallet of a  
16    size to prevent passage of said flanges of said additional plurality of said connectors  
17    therethrough, said lower extensions of said additional plurality of said connectors being

18 respectively disposed with a close fit in said bores of said lower pallet via said entry  
19 apertures along said upper surface of said lower pallet, with said upper surface of said  
20 lower pallet in abutment with said lower faces of said flanges of said additional plurality  
21 of said connectors.

1 4. The pallet rack recited in claim 3 wherein said longitudinal passages of  
2 said upper and lower portions are formed coaxially in each of said posts.

1 5. The pallet rack recited in claim 1 wherein said upper pallet unit further  
2 comprises an additional plurality of said vertical posts extending longitudinally upwardly  
3 from said upper surface of said upper pallet, each of said posts of said upper pallet unit  
4 having a lower portion secured to said upper pallet and an upper portion terminating at  
5 an upper end.

1 6. The pallet rack recited in claim 5 wherein said posts of said upper pallet  
2 unit are respectively longitudinally aligned with said posts of said lower pallet unit.

1 7. The pallet rack recited in claim 5 wherein said lower pallet unit further  
2 comprises at least one shelf secured to said posts of said lower pallet unit in spaced  
3 parallel relation above said upper surface of said lower pallet, and said upper pallet unit  
4 further comprises at least one shelf secured to said posts of said upper pallet unit in  
5 spaced parallel relation above said upper surface of said upper pallet.

1        8.     The pallet rack recited in claim 5 wherein said posts of said lower pallet  
2     unit comprise two front posts and two rear posts, said lower pallet unit further comprises  
3     a front stabilizing bar extending diagonally between said front posts, a rear stabilizing  
4     bar extending diagonally between said rear posts, and a pair of side stabilizing bars  
5     respectively extending diagonally between said front posts and said rear posts, said  
6     posts of said upper pallet unit comprise two front posts and two rear posts, said upper  
7     pallet unit further comprises a front stabilizing bar extending diagonally between said  
8     front posts of said upper pallet unit, a rear stabilizing bar extending diagonally between  
9     said rear posts of said upper pallet unit and a pair of side stabilizing bars respectively  
10    extending diagonally between said front posts of said upper pallet unit and said rear  
11    posts of said upper pallet unit.

1        9.     The pallet rack recited in claim 8 wherein at least one of said stabilizing  
2     bars of each of said pallet units is removable and some of said stabilizing bars of each  
3     of said pallet units are not removable.

1        10.    A pallet rack comprising  
2        a lower pallet unit including a lower pallet having four corners and a horizontal  
3        upper surface, and four vertical posts respectively adjacent said corners extending  
4        longitudinally upwardly from said upper surface in a direction perpendicular to said  
5        upper surface, each of said posts having a lower portion secured to said lower pallet  
6        and an upper portion terminating at an upper end, each of said posts having a  
7        longitudinal passage in said upper portion with an entry opening at said upper end;

8                  four connectors respectively associated with said posts, each of said connectors  
9                  including a lower extension and an upper extension having a common central  
10                 longitudinal axis, and a support flange between said lower and upper extensions  
11                 perpendicular to said central longitudinal axis, each of said flanges having a lower face,  
12                 an upper face and an external size to prevent passage of said flanges through said  
13                 entry openings, said lower extensions being respectively disposed coaxially with a close  
14                 fit in said passages via said entry openings with said lower faces of said flanges  
15                 respectively supported on said upper ends of said posts; and

16                 an upper pallet unit including an upper pallet having four corners, a horizontal  
17                 upper surface and a lower surface beneath said upper surface of said lower pallet, and  
18                 four longitudinal bores in said upper pallet respectively adjacent said corners of said  
19                 upper pallet in respective correspondence with said posts, each of said bores having an  
20                 entry aperture along said lower surface of a size to prevent passage of said flanges  
21                 therethrough, said upper extensions being respectively disposed coaxially with a close  
22                 fit in said bores via said entry apertures, said lower surface of said upper pallet being  
23                 supported on said upper faces of said flanges with said upper surfaces of said pallets in  
24                 parallel spaced relation.

1                 11.         The pallet rack recited in claim 10 and further including a base plate  
2                 extending perpendicularly from each of said lower portions of said posts and attached  
3                 in supporting relation on said upper surface of said lower pallet.

1           12. The pallet rack recited in claim 10 wherein each of said lower portions of  
2    said posts terminates at a lower end, each of said posts has a longitudinal passage in  
3    said lower portion with an entry opening at said lower end, and further including an  
4    additional four of said connectors respectively associated with said posts, said external  
5    size of said flanges of said additional connectors preventing passage of said flanges of  
6    said additional connectors through said entry openings at said lower ends, said upper  
7    extensions of said additional connectors being respectively disposed coaxially with a  
8    close fit in said passages in said lower portions via said entry openings at said lower  
9    ends with said lower ends respectively supported on said upper faces of said flanges of  
10   said additional connectors, and further comprising four longitudinal bores in said lower  
11   pallet respectively adjacent said corners of said lower pallet, said bores in said lower  
12   pallet being respectively coaxial with said bores in said upper pallet and having entry  
13   apertures along said upper surface of said lower pallet of a size to prevent passage of  
14   said flanges of said additional connectors therethrough, said lower extensions of said  
15   additional connectors being respectively disposed coaxially with a close fit in said bores  
16   in said lower pallet via said entry apertures along said upper surface of said lower  
17   pallet, with said lower faces of said flanges of said additional connectors supported on  
18   said upper surface of said lower pallet.

1           13. The pallet rack recited in claim 10 wherein said upper pallet unit further  
2    includes four vertical posts respectively adjacent said corners of said upper pallet, said  
3    posts of said upper pallet unit extending longitudinally upwardly from said upper surface  
4    of said upper pallet in a direction perpendicular to said upper surface of said upper

5      pallet and in longitudinal alignment with said posts of said lower pallet unit, each of said  
6      posts of said upper pallet unit having a lower portion secured to said upper pallet and  
7      having an upper portion terminating at an upper end.

1            14.     The pallet rack recited in claim 13 and further including a plurality of  
2      securing devices respectively securing said lower portions of said posts of said lower  
3      pallet unit to said lower pallet.

1            15.     The pallet rack recited in claim 14 and further including a plurality of  
2      securing devices respectively securing said lower portions of said posts of said upper  
3      pallet unit to said upper pallet.

1            16.     The pallet rack recited in claim 12 wherein each of said posts is tubular  
2      with a lumen extending longitudinally entirely therethrough defining said longitudinal  
3      passages in said upper and lower portions.

1            17.     The pallet rack recited in claim 13 wherein said posts of said lower pallet  
2      unit comprise two front posts and two rear posts, said lower pallet unit further comprises  
3      a first attachment device attached to said lower portion of one of said front posts, a  
4      second attachment device attached to said upper portion of the other one of said front  
5      posts, a third attachment device attached to said upper portion of one of said rear posts  
6      and a fourth attachment device attached to said lower portion of the other of said rear  
7      posts, said first attachment device includes a first plate extending perpendicularly from

8 said one of said front posts in the direction of said other of said front posts and a  
9 second plate extending perpendicularly from said one of said front posts perpendicular  
10 to said first plate and in the direction of said one of said rear posts, said second  
11 attachment device includes a first plate extending perpendicularly from said other of  
12 said front posts in the direction of said one of said front posts and a second plate  
13 extending perpendicularly from said other of said front posts perpendicular to said first  
14 plate of said second attachment device and in the direction of said other of said rear  
15 posts, said third attachment device includes a first plate extending perpendicularly from  
16 said one of said rear posts in the direction of said other of said rear posts and a second  
17 plate extending perpendicularly from said one of said rear posts perpendicular to said  
18 first plate of said third attachment device and in the direction of said one of said front  
19 posts, said fourth attachment includes a first plate extending perpendicularly from said  
20 other of said rear posts in the direction of said one of said rear posts and a second  
21 plate extending perpendicularly from said other of said rear posts perpendicular to said  
22 first plate of said fourth attachment device and in the direction of said other of said front  
23 posts, a front stabilizing bar having opposing ends removably attached to said first plate  
24 of said first attachment device and to said first plate of said second attachment device,  
25 a rear stabilizing bar having opposing ends removably attached to said first plate of said  
26 third attachment device and to said first plate of said fourth attachment device, a first  
27 side stabilizing bar having opposing ends non-removably attached to said second plate  
28 of said first attachment device and to said second plate of said third attachment device,  
29 and a second side stabilizing bar having opposing ends non-removably attached to said

30 second plate of said second attachment device and to said second plate of said fourth  
31 attachment device.

1           18. The pallet rack recited in claim 17 and further including abutment plates  
2 respectively secured to said opposing ends of said front stabilizing bar and securing  
3 elements removably securing said abutment plates respectively to said first plate of said  
4 first attachment device and to said first plate of said second attachment device, and  
5 further comprising abutment plates respectively secured to said opposing ends of said  
6 rear stabilizing bar and securing elements removably securing said abutment plates of  
7 said rear stabilizing bar respectively to said first plate of said third attachment device  
8 and to said first plate of said fourth attachment device.

1           19. A pallet rack comprising  
2           upper and lower pallets each having first and second parallel stringers  
3 respectively disposed on opposite sides of said pallet, a horizontal upper surface on top  
4 of said stringers, and a lower surface beneath said upper surface;  
5           four vertical posts each having a central longitudinal axis, an upper portion  
6 terminating at an upper end, a lower portion, and an axial passage in said upper portion  
7 with an entry opening at said upper end, said lower portions being secured to said lower  
8 pallet with said posts extending longitudinally upwardly from and perpendicular to said  
9 upper surface of said lower pallet, a first pair of said posts being in alignment with said  
10 first stringer of said lower pallet and a second pair of said posts being in alignment with  
11 said second stringer of said lower pallet;

12           four longitudinal bores in said upper pallet with respective entry apertures along  
13    said lower surface of said upper pallet, a first pair of said bores extending within said  
14    first stringer of said upper pallet in respective axial alignment with said first pair of said  
15    posts and a second pair of said bores extending within said second stringer of said  
16    upper pallet in respective axial alignment with said second pair of said posts; and  
17           four connectors respectively coupling said posts to said upper pallet, each of  
18    said connectors including an upper extension and a lower extension having a common  
19    central longitudinal axis, and a flange between said upper and lower extensions  
20    extending perpendicular to said common central longitudinal axis, said flanges being  
21    incapable of passing through said entry openings and said entry apertures, said upper  
22    extensions being respectively received in said bores through said entry apertures and  
23    said lower extensions being respectively received in said passages through said entry  
24    openings, said lower surface of said upper pallet being supported on said flanges and  
25    said flanges being respectively supported on said upper ends of said posts to support  
26    said upper surface of said upper pallet in spaced parallel relation over said lower pallet.

1           20.    The pallet rack recited in claim 19 wherein each of said stringers has a  
2    length and a width, said width of said first and second stringers of said lower pallet is  
3    perpendicular to said upper surface of said lower pallet, said width of said first and  
4    second stringers of said upper pallet is perpendicular to said upper surface of said  
5    upper pallet, each of said upper surfaces comprising a plurality of deck boards having a  
6    length perpendicular to said length of said stringers.